BMEG3120: Exercise List 4

Assume that we have these tables:

- CUST: schema (cid, name), where *cid* and *name* are a customer's id and name, respectively. The table has a candidate key {cid}.
- ACCOUNT: schema (aid, cid, bid, balance), where each tuple represents an account. Specifically, *aid* is the account id, *cid* is the customer id of the account's owner, *bid* is the id of the branch where the account was opened, and the meaning of *balance* is obvious. The table has a candidate key {cid, bid}, and another candidate key {aid}.

Write SQL queries to solve the following problems.

Problem 1. For each customer, display her/his name and the total balance of all her/his accounts.

Answer.
```
select name, sum(balance)
from CUST, ACCOUNT
where CUST.cid = ACCOUNT.cid
group by cid, name
```

Problem 2. Write a statement to check whether there are two accounts with the same balance. If such accounts do not exist, your query must return an empty table. Otherwise, your query should return a non-empty table (whose content is up to you).

Answer.
```
select count(*)
from ACCOUNT
group by balance
having count(*) >= 2
```

Problem 3. In SQL, you can use **as** to rename columns as well. For example, the following query will return a table with a single column called "wealth":

```
select sum(balance) as wealth
from ACCOUNT
group by cid
```

Define the *wealth* of a customer as the total balance of all her/his accounts. Report the maximum wealth of all the customers (hint: use column renaming).

Answer.
```
select max(wealth)
from (select sum(balance) as wealth
      from ACCOUNT
      group by cid)
```

Problem 4*. Find the aids of the accounts with the 100 largest balances. Specifically, you should report the aid of an account if and only if its balance is smaller than or equal to the balances of at

most 99 other accounts.

Answer.

```
select T1.aid
from ACCOUNT as T1, ACCOUNT as T2
where T1.balance <= T2.balance
group by T1.aid
having count(*) <= 100
```